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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,051	11/19/2003	Richard R. Bijjani	L0632.70001US04	7442
7590 04/21/2004			EXAMINER	
Randy J. Pritzker Wolf, Greenfield & Sacks, P.C. 600 Atlantic Avenue Boston, MA 02210			HO, ALLEN C	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/717,051

Applicant(s)

BIJJANI ET AL.

Examiner

Allen C. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Page 11, line 31, "71 a,b" should be replaced by --70 a,b--.

Appropriate correction is required.

Claim Objections

2. Claim 8 is objected to because of the following informalities: line 2, "item" should be replaced by --object--. Appropriate correction is required.
3. Claim 12 is objected to because of the following informalities: line 2, "item" should be replaced by --object--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 6, 7, and 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Krug *et al.* (U. S. Patent No. 5,838,758).

With respect to claim 1, Krug *et al.* disclosed a method for analyzing an object comprising: pre-scanning the object using a multiple energy x-ray device (100) to determine

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information indicative of effective atomic number characteristics of the object; and conducting scans of areas of interest of the object with a computed tomography device (1002) based on the information (column 32, lines 18-44).

With respect to claim 2, Krug *et al.* disclosed the method of claim 1, further comprising transmitting the information to a processor coupled to the computed tomography device (a computer tomography device would necessarily have a processor).

With respect to claim 6, Krug *et al.* disclosed the method of claim 1, further comprising using the information to determine density characteristics of the object (since the linear absorption coefficient is proportional to the density).

With respect to claim 7, Krug *et al.* disclosed the method of claim 1, further comprising using the information to determine a plane of the object to be scanned (column 32, lines 32-35).

With respect to claim 10, Krug *et al.* disclosed an apparatus for analyzing an object comprising: a multiple energy prescanner (100) that prescans the object; and a computed tomography device (1002) that scans only areas of interest of the object based on information determined in the prescan (column 32, lines 18-44).

With respect to claim 11, Krug *et al.* disclosed the apparatus of claim 10, wherein the multiple-energy prescanner has a high-energy x-ray source and a low-energy x-ray source (dual energy).

With respect to claim 12, Krug *et al.* disclosed the apparatus of claim 10, further comprising a conveyor (5) for transporting the object from the multiple-energy prescanner to the computed tomography device.

With respect to claim 13, Krug *et al.* disclosed the apparatus of claim 10, wherein the computed tomography device is a multiple-energy computed tomography device (column 32, lines 38-40).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krug *et al.* (U. S. Patent No. 5,838,758) as applied to claim 2 above, and further in view of Tuy (U. S. Patent No. 5,243,664).

With respect to claim 3, Krug *et al.* disclosed the method of claim 2. However, Krug *et al.* failed to teach performing a metal artifact correction based on the information.

Tuy disclosed a method of correction for metal artifacts. Tuy taught that a CT image, which includes metallic objects, would have severe artifacts (column 1, lines 18-30).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to performing a metal artifact correction based on the information, since a person would be motivated to obtain a CT reconstructed image that is free of metal artifacts.

With respect to claim 4, Krug *et al.* in combination with Tuy disclosed the method of claim 3, wherein performing a metal artifact correction includes performing a beam hardening correction (Tuy, column 2, lines 42-52).

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8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krug *et al.* (U. S. Patent No. 5,838,758) and Tuy (U. S. Patent No. 5,243,664) as applied to claim 3 above, and further in view of Timmer (U. S. Patent No. 5,905,809).

With respect to claim 5, Krug *et al.* in combination with Tuy disclosed the method of claim 3. However, Krug *et al.* and Tuy failed to teach performing a scatter correction.

Timmer disclosed a method for correcting scattered x-rays for computed tomography. Timmer taught that scattered x-rays cause image artifacts (column 1, lines 43-44).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to perform a scatter correction, since a person would be motivated to obtain a CT reconstructed image that is free of artifacts.

9. Claims 8, 9, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krug *et al.* (U. S. Patent No. 5,838,758) in view of Tuy (U. S. Patent No. 5,243,664).

With respect to claim 8, Krug *et al.* disclosed a method for analyzing an object comprising: pre-scanning the object using a multiple-energy x-ray device (100) to determine prescan information; transmitting the prescan information to a processor (a computed tomography device would necessarily have a processor) coupled to a computed tomography device (1002); performing a computed tomography scan of a plane of the object based on the prescan information (column 32, lines 35-37).

However, Krug *et al.* failed to teach performing a metal artifact correction on the computed tomography scan based on the prescan information if the plane intersects an area including or near a metal object.

Tuy disclosed a method of correction for metal artifacts. Tuy taught that a CT image, which includes metallic objects, would have severe artifacts (column 1, lines 18-30).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to performing a metal artifact correction on the computed tomography scan based on the prescan information if the plane intersects an area including or near a metal object, since a person would be motivated to obtain a CT reconstructed image that is free of metal artifacts.

With respect to claim 9, Krug *et al.* in combination with Tuy disclosed the method of claim 8, wherein the processor is located within the computed tomography device.

With respect to claim 14, Krug *et al.* disclosed an apparatus for analyzing an object comprising: a multiple-energy prescanner (100); and a computed tomography device (1002).

However, although a multiple-energy prescanner is capable of identifying metallic objects, Krug *et al.* failed to teach that information indicative of at least one metal artifact is transmitted from the multiple-energy prescanner to the computed tomography device.

Tuy disclosed a method of correction for metal artifacts. Tuy taught that a CT image, which includes metallic objects, would have severe artifacts (column 1, lines 18-30).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to transmit information indicative of metal artifact from the multiple-energy prescanner to the computed tomography device, since a person would be motivated to obtain a CT reconstructed image that is free of metal artifacts by performing metal artifact correction.

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Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- (1) Gayer *et al.* (U. S. Patent No. 6,094,467) disclosed metal correction.
- (2) Peschmann (U. S. Patent No. 5,367,552) disclosed an object detection system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allen C. Ho

Allen C. Ho
Patent Examiner
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